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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/092,641      | 03/06/2002  | Craig Jon Hawker     | 5075-0033           | 8458             |

7590 10/06/2003  
Shelley P. Eberle  
REED & ASSOCIATES  
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800 Menlo Avenue  
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EXAMINER

CHACKO DAVIS, DABORAH

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

1756

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/092,641

Applicant(s)

HAWKER ET AL.

Examiner

Daborah Chacko-Davis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-73 is/are pending in the application.
- 4a) Of the above claim(s) 1-64 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 65-73 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-64, are drawn to a method, classified in class 264, subclass 425.
  - II. Claims 65-73, are drawn to a method, classified in class 430, subclass 311.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case Invention I does not require the formation of a porous dielectric matrix to form an integrated circuit.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Ms. Shelley P. Eberle on September 29, 2003 a provisional election was made without traverse to prosecute the invention of Group II, claims 65-73. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-64, are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.
5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one

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or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 65-73, are rejected under 35 U.S.C. 102(b) as being anticipated by U. S. Patent No. 6,107,357 (Hawker et al).

Hawker, in col 3, lines 52-67, in col 4, lines 1-17, in col 5, lines 63-67, in col 6, lines 1-13, in col 9, lines 7-67, in col 10, lines 1-67, in col 11, lines 27-41, discloses a method for preparing a porous dielectric material comprising polymers having a plurality of crosslinkable groups (such as silsesquioxane), that undergo irreversible crosslinking reactions when heated (activated); heating the crosslinkable groups to the crosslinking temperature ( $T_c$ ) to form crosslinked particles (porogens such as vinyl based polymer or polyethers crosslinked to the coupling agent such as silsesquioxane or isocyanate etc); mixing the crosslinked particles with the host polymer (host matrix material) to form a mixture; heating the mixture to a decomposition temperature ( $T_D$ ) of the crosslinked portion (porogen), wherein the decomposition temperature of the porogen is less than the decomposition temperature of the host polymer (the host polymer has a high  $T_g$ ), so

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as to decompose the crosslinked particles (porogen) to form the porous dielectric material (claim 65). Hawker, in col 10, lines 56-57, discloses that the closed cell pores have a pore diameter that is generally less than 20nm (claim 66). Hawker, in col 6, lines 1-67, in col 7, lines 58-67, in col 8, lines 1-32, in col 10, lines 51-60, in col 11, lines 27-67, and in col 12, lines 1-8, discloses a method for manufacturing an integrated circuit comprising disposing on a substrate a layer of the porous dielectric material having pore diameters less than 20nm, said porous dielectric material includes crosslinked particles (porogen and coupling agent) and a host polymer (host matrix, such as polybenzocyclobutene), wherein the decomposition temperature of the porogen is less than that of the host polymer; heating the admixture (the porogen, the coupling agent and the host polymer mixture) to the decomposition temperature of the porogen so as to decompose the porogen and form a porous dielectric layer on the substrate; lithographically patterning the porous dielectric layer; forming a metallic film on the patterned dielectric layer; and planarizing the metallic film (claims 67, and 71-73). Hawker, in col 6, lines 52-67, in col 8, lines 1-21, in col 10, lines 51-59, discloses that the porous polymeric dielectric material comprises an organic material and has closed cell pores preferably less than 10nm in diameter (claims 68-70).

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daborah Chacko-Davis whose telephone number is (703) 306-5923. If the examiner is unavailable, you may contact her supervisor, Mark

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F. Huff at (703) 308-2464. FAX communications should be sent to the appropriate FAX number; (703) 872-9311 for After Final Responses only or (703) 872-9310 for all other responses. FAXES received after 4:00 P.M. will not be processed until the following business day.

dcd

*[Signature]*

October 1, 2003.

*[Signature]*  
MARK F. HUFF  
SUPERVISOR/INVENT EXAMINER  
TECHNOLOGY CENTER 1700